WHAT IS CLAIMED IS:

1. An organic light emitting device comprising

(i) a first electrode;

(ii) a mixed region comprising a first hole transport material and a first electron transport material;

(iii) a second electrode;

(iv) an optional thermal protective layer coated on one of said first and second electrodes, wherein one of said first and second electrodes is a hole injection anode, and one of said electrodes is an electron injection cathode, and wherein the organic light emitting device further comprises at least one of

(v) a hole transport region interposed between said anode and said mixed region; and wherein said hole transport region is comprised of a second hole transport material, and which material is in contact with the mixed region; and

(vi) an electron transport region interposed between said cathode and said mixed region, and wherein said region is comprised of a second electron material, and which material is in contact with the mixed region; and containing at least one of

a. said hole transport region (v) wherein said first hole transport material (ii) is similar to or dissimilar than said second hole transport material (v);

b. said electron transport region (vi) wherein said first electron transport material (ii) is similar to or dissimilar than said second electron transport material; and wherein when a. is similar, b. is dissimilar; when a. is dissimilar, b. is similar or dissimilar; and when b. is dissimilar, a. is similar or dissimilar.

2. An organic light emitting device in accordance with **claim 1** wherein said electron transport region is interposed or situated between said cathode and the mixed region, said hole transport region is interposed between said anode and the mixed region, and wherein said first electron transport material and said second electron transport material are dissimilar, and wherein said first hole transport material, and said second hole transport material are dissimilar.

3. An organic light emitting device in accordance with **claim 1** wherein said electron transport region is interposed between said cathode and said mixed region, and said hole transport region is interposed between said anode and the mixed region, and wherein said first electron transport material and said second electron transport material are dissimilar, and wherein said first hole transport and said second hole transport material are comprised of the same components.

4. An organic light emitting device in accordance with **claim 1** wherein said electron transport region is situated between said cathode and the mixed region, wherein said hole transport region is interposed between said anode and the mixed region, and wherein said first electron transport material and said second electron transport material are similar, and wherein said first hole transport material and said second hole transport material are dissimilar.

5. An organic light emitting device in accordance with **claim 1** wherein said electron transport region is interposed between said cathode and said mixed region, wherein said organic light emitting device is free of said hole transport region, and wherein said first electron transport material and said second electron transport material are dissimilar.

6. An organic light emitting device in accordance with **claim 1** wherein said hole transport region is interposed between said anode and said mixed region, wherein said organic light emitting is free of an electron transport region, and wherein said first hole transport material and said second hole transport material are dissimilar.

7. An organic light emitting device in accordance with **claim 1** wherein at least one of a. or b. is present, and wherein said first hole transport material or said second hole transport is a component selected from the group consisting of tertiary aromatic amines, bicarbazoles, and indolocarbazoles; and wherein said first electron transport is selected from the group consisting of metal oxinoids, stilbenes, triazines, and quinolines.

8. An organic light emitting device in accordance with **claim 7** wherein said tertiary aromatic amine is selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB) and N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD); wherein said indolocarbazole is selected from the group consisting of 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole; and wherein said metal oxinoid is selected from the group consisting of tris(8-hydroxyquinoline) aluminum (Alq_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq).

9. An organic light emitting device in accordance with **claim 1** wherein said hole transport region comprises a porphyrin.

10. An organic light emitting device in accordance with **claim 9** wherein said porphyrin is a metal phthalocyanine.

11. An organic light emitting device in accordance with **claim 10** wherein said metal phthalocyanine is copper phthalocyanine (CuPc).

12. An organic light emitting device in accordance with **claim 1** wherein said hole transport region comprises at least two layers.

13. An organic light emitting device in accordance with **claim 1** wherein said hole transport region comprises (i) a first layer contacting the anode wherein the first layer comprises a porphyrin, and (ii) a second layer contacting the mixed region wherein the second layer comprises said second hole transport material.

14. An organic light emitting device in accordance with **claim 1** wherein said hole transport region is comprised of a layer comprising a mixture of (i) from about 25 weight percent to about 99 weight percent of a porphyrin; and (ii) from about 75 weight percent to about 1 weight percent of said second hole transport material.

15. An organic light emitting device in accordance with **claim 1** wherein said electron transport region comprises at least two layers.

16. An organic light emitting device in accordance with **claim 15** wherein said electron transport region comprises (i) a first layer contacting the cathode, and (ii) a second layer contacting said mixed region wherein said second layer comprises said second electron transport material.

17. An organic light emitting device in accordance with **claim 1** wherein there is at least one of (1) an anode comprising a layer comprised of indium-tin-oxide, and (2) a cathode comprising a layer selected from the group consisting of (a) a layer comprised of Mg and Ag; (b) a layer comprised of Al; (c) a layer comprised of indium-tin-oxide; (d) a layer comprised of an organic compound Mg and Ag; and (e) mixtures thereof.

18. An organic light emitting device in accordance with **claim 17** wherein said cathode further comprises an alkaline metal or a compound thereof.

19. An organic light emitting device in accordance with **claim 18** wherein said alkaline metal is selected from the group consisting of Li, Na, K and Cs.

20. An organic light emitting device in accordance with **claim 1** wherein said thermal protective layer is present, and which thermal protective layer comprises a layer of SiO, SiO_2 or mixtures thereof.

21. An organic light emitting device in accordance with **claim 1** wherein the mixed region (ii) contains a luminescent material optionally selected from the group consisting of fluorescent materials of coumarin, dicyanomethylene pyranes, polymethine, oxabenzanthrane, xanthene, pyrylium, carbostyl, perylene, acridone, quinacridone, rubrene, anthracene, coronene, phenanthracene, pyrene, butadiene, stilbene, lanthanide metal chelate complexes, and rare-earth metal chelate complexes.

22. An organic light emitting device in accordance with **claim 21** wherein said luminescent material is selected from the group consisting of rubrene, N,N'-dimethylquinacridone (DMQ), 10-2-(benzothiazolyl)-2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H, 5H, 11H-(1)benzopyropyrano (6,7,-8-ij)quinolizin-11-one(C545T), and (2-(1,1-dimethylethyl)-6-(2-(2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H,5H-benzo(ij) quinolizin-9-yl)ethenyl)-4H-pyran-4-ylidene)propanedinitrile (DCJTB).

23. An organic light emitting device in accordance with **claim 1** wherein the mixed region (ii) contains a luminescent material, and which luminescent material is a phosphorescent material.

24. An organic light emitting device in accordance with **claim 23** wherein said luminescent material is selected from the group consisting of 2,3,7,8,12,13,17,18-octaethyl-21H,23H-phorpine platinum(II) (PtOEP) and fac tris(2-phenylpyridine)iridium ($Ir(ppy)_3$).

25. An organic light emitting device in accordance with **claim 1** wherein said mixed region comprises from about 10 weight percent to about 90 weight percent of said first hole transport material, and from about 90 weight percent to about 10 weight percent of said first electron transport material, and wherein the total thereof is about 100 percent.

26. An organic light emitting device in accordance with **claim 25** wherein said mixed region further comprises from about 0.01 weight percent to about 50 weight percent of a luminescent material.

27. An organic light emitting device in accordance with **claim 1** wherein said mixed region comprises from about 25 weight percent to about 75 weight percent of said first hole transport material, and from about 75 weight percent to about 25 weight percent of said first electron transport material.

28. An organic light emitting device in accordance with **claim 27** wherein said mixed region further comprises from about 0.01 weight percent to about 50 weight percent of a luminescent material.

29. An organic light emitting device in accordance with **claim 27** wherein said first hole transport material is selected from the group consisting of N,N'-di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB) and N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD); and wherein said first electron transport material is selected from the group consisting of tris(8-hydroxyquinoline) aluminum (Alq_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq).

30. An organic light emitting device in accordance with **claim 1** wherein the thickness of the organic light emitting device is from about 100 nanometers to about 5,000 nanometers, and wherein the thickness of said mixed region is from about 10 nanometers to about 500 nanometers, and optionally wherein said thermal propective layer is present on said anode and said cathode.

31. An organic light emitting device in accordance with **claim 1** wherein the thickness of said mixed region is from about 20 nanometers to about 200 nanometers.

32. An organic light emitting device in accordance with **claim 1** and comprising in sequence

(i) an anode;

(ii) a mixed region comprised of from about 35 weight percent to about 65 weight percent of a first hole transport material selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB) and N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), and from about 65 weight percent to about 35 weight percent of a first electron transport material selected from the group consisting of tris(8-hydroxyquinoline)aluminum (AlQ_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq); wherein all weight percentages are based on the total weight of materials comprising the mixed region, and wherein the thickness of the mixed region is from about 20 nanometers to about 200 nanometers;

(iii) a cathode;

(iv) a hole transport region situated between said anode and said mixed region comprised of one of (a) a layer with a thickness of from about 5 nanometers to about 100 nanometers of a second hole transport material selected from the group consisting of copper phthalocyanine (CuPc), N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole; (b) a layer with thickness of from about 5 nanometers to about 100 nanometers comprised of from about 50 weight percent to about 99 weight percent of copper phthalocyanine (CuPc) and from about 50 weight percent to about 1 weight percent of a second hole transport material selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-

dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole, and (c) two layers, a first layer contacting the anode with a thickness of from about 10 nanometers to about 50 nanometers comprised of copper phthalocyanine (CuPc), and a second layer coated on the first layer with a thickness of from about 5 nanometers to about 50 nanometers and comprised of a second hole transport material selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole, and wherein the second layer contacts the mixed region;

(v) an electron transport region situated between the cathode and the mixed region, and comprised of one of (a) a layer with thickness of from about 5 nanometers to about 50 nanometers comprised ofs a second electron transport material selected from the group consisting of tris(8-hydroxyquinoline)aluminum (Alq_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq), and (b) two layers, a first layer contacting the mixed region with a thickness of from about 5 nanometers to about 25 nanometers comprised of a second electron transport material selected from the group consisting of tris(8-hydroxyquinoline)aluminum (Alq_3), bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq) and 1,4-bis(4-phenylquinolin-2-yl)benzene, 4,4'-bis(4-phenylquinolin-2-yl)-1,1'-biphenyl (TA), and a second layer with a thickness of from about 5 nanometers to about 25 nanometers comprised of a material selected from the group consisting of (8-hydroxyquinoline)aluminum (Alq_3), copper phthalocyanine (CuPc), 4,4'-bis-[2-(4,6-diphenyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-p-tolyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-m-tolyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-p-methoxyphenyl-1,3,5-triazinyl)]-

1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-m-methoxyphenyl-1,3,5-triazinyl)]-1,1'-biphenyl and 2,4,6-tris(4-biphenylyl)-1,3,5-triazine.

33. An organic light emitting device in accordance with **claim 32** wherein the mixed region further comprises one of

(i) from about 0.2 weight percent to about 2 weight percent of a luminescent material selected from the group consisting of rubrene, N,N'-dimethylquinacridone (DMQ), and 10-2-(benzothiazolyl)-2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H, 5H, 11H-(1)benzopyropyrano (6,7,-8-ij)quinolizin-11-one (C545T);

(ii) from about 0.2 weight percent to about 5 weight percent of (2-(1,1-dimethylethyl)-6-(2-(2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H,5H-benzo(ij)quinolizin-9-yl)ethenyl)-4H-pyran-4-ylidene)propanedinitrile (DCJTB); and

(iii) from about 5 weight percent to about 15 weight percent of 2,3,7,8,12,13,17,18-octaethyl-21H,23H-phorpine platinum(II) (PtOEP) wherein all weight percentages are based on the total weight of materials comprising the mixed region.

34. An organic light emitting device in accordance with **claim 1** and comprising in sequence

(i) an anode of indium-tin-oxide with a thickness of from about 30 to about 300 nanometers coated on a substrate, the anode and the substrate being capable of transmitting at least about 70 percent of radiation of wavelength of from about 400 nanometers to about 750 nanometers;

(ii) a mixed region comprised of from about 35 weight percent to about 65 weight percent of a first hole transport material selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB) and N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD) and from about 65 weight percent to about 35 weight percent of a first electron transport material selected from the group consisting of tris(8-hydroxyquinoline)aluminum (AlQ_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq) wherein all weight percentages are based on the total weight of materials comprising the mixed region, and wherein the thickness of the mixed region is from about 20 nanometers to about 200 nanometers;

(iii) a cathode comprised of one of (a) a layer comprised of Mg:Ag alloy or Al of a thickness of from about 50 nanometers to about 500 nanometers; (b) two layers, a first layer comprised of from about 40 volume percent to about 55 volume percent of Mg; from about 2 volume percent to about 10 volume percent of Ag and from about 55 volume percent to about 40 volume percent of an organic compound, wherein the thickness of the first layer is from about 100 nanometers to about 600 nanometers; and coated with a second layer of a thickness of from about 50 nanometers to about 500 nanometers and comprising a metal or a metal alloy;

(iv) a thermal protective element situated on the cathode comprised of SiO, SiO_2 or mixtures thereof of a thickness of from about 100 nanometers to about 1,000 nanometers;

(v) a hole transport region situated between the anode and the mixed region comprised of one of (a) a layer with a thickness of from about 5 nanometers to about 100 nanometers of a second hole transport material selected from the group consisting of copper phthalocyanine (CuPc), N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole; (b) a layer with a thickness of from about 5 nanometers to about 100 nanometers comprised of from about 50 weight percent to about 99 weight percent of copper phthalocyanine (CuPc) and from about 50 weight percent to about 1 weight percent of a second hole transport material selected from the group consisting of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole, and (c) two layers, a first layer contacting the anode, wherein said first layer possesses a thickness of from about 10 nanometers to about 50 nanometers and is comprised of copper phthalocyanine (CuPc), and said second layer in contact with the first layer, said second layer possessing a thickness of from about 5 nanometers to about 50 nanometers and which is comprised of a second hole transport material of N,N'–di(naphthalene-1-yl)-N,N'-diphenyl-benzidine (NPB), N,N'-bis(p-biphenyl)-N,N'-diphenyl benzidine (biphenyl TPD), 5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole (NIC), and 2,8-dimethyl-5,11-di-naphthyl-5,11-dihydroindolo[3,2-b]carbazole in the second layer contacting the mixed region;

(vi) an electron transport region situated between the cathode and the mixed region comprised of one of (a) a layer with thickness of from about 5 nanometers to about 50 nanometers of a second electron transport material selected from the group consisting of tris(8-hydroxyquinoline)aluminum (Alq_3) and bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq), and (b) two layers, a first layer contacting the mixed region with a thickness of from about 5 nanometers to about 25 nanometers, comprised of a second electron transport material selected from the group consisting of tris(8-hydroxyquinoline) aluminum (Alq_3), bis(8-hydroxyquinolato)-(4-phenylphenolato)aluminum (Balq) and 1,4-bis(4-phenylquinolin-2-yl)benzene, 4,4'-bis(4-phenylquinolin-2-yl)-1,1'-biphenyl (TA), and a second layer with thickness of from about 5 nanometers to about 25 nanometers comprised of a material selected from the group consisting of (8-hydroxyquinoline)aluminum (Alq_3), copper phthalocyanine (CuPc), 4,4'-bis-[2-(4,6-diphenyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-p-tolyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-m-tolyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-p-methoxyphenyl-1,3,5-triazinyl)]-1,1'-biphenyl, 4,4'-bis-[2-(4,6-di-m-methoxyphenyl-1,3,5-triazinyl)]-1,1'-biphenyl and 2,4,6-tris(4-biphenylyl)-1,3,5-triazine.

35. An organic light emitting device in accordance with **claim 34** wherein the mixed region comprises at least one of

(i) from about 0.2 weight percent to about 2 weight percent of a luminescent material selected from the group consisting of rubrene, N,N'-dimethylquinacridone (DMQ), and 10-2-(benzothiazolyl)-2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H, 5H, 11H-(1)benzopyropyrano (6,7,-8-ij) quinolizin-11-one (C545T);

(ii) from about 0.2 weight percent to about 5 weight percent of (2-(1,1-dimethylethyl)-6-(2-(2,3,6,7-tetrahydro-1,1,7,7-tetramethyl-1H,5H-benzo(ij)quinolizin-9-yl)ethenyl)-4H-pyran-4-ylidene)propanedinitrile (DCJTB); and

(iii) from about 5 weight percent to about 15 weight percent of 2,3,7,8,12,13,17,18-octaethyl-21H,23H-phorpine platinum(II) (PtOEP) wherein all weight percents are based on the total weight of materials comprising the mixed region.

36. A display comprising at least one organic light emitting device in accordance with **claim 1**.

37. A method of forming an organic light emitting device of **claim 1** wherein the method comprises a vacuum evaporation process or spin coating.

38. A method in accordance with **claim 37** wherein the vacuum evaporation process is accomplished at a vacuum of from about 5 x 10^{-12} to about 5 x 10^{-3} millimeters Hg.

39. An organic light emitting device in accordance with **claim 1** wherein each of said regions (ii), (v) and (vi) are comprised of from about 1 layer to about 5 layers.

40. An organic light emitting device in accordance with **claim 1** wherein each of said regions (ii), (v) and (vi) are comprised of a plurality of layers.

41. An organic light emitting device in accordance with **claim 1** wherein said first hole transport material and said second hole transport material are dissimilar.

42. An organic light emitting device in accordance with **claim 1** wherein said first hole transport material and said second hole transport material are similar.

43. An organic light emitting device in accordance with **claim 1** wherein each of said regions (ii), (v) and (vi) are comprised of one layer.

44. An organic light emitting device in accordance with **claim 1** wherein said hole transport region (v) is comprised of from 1 to about 5 layers, and wherein said layer in contact with said mixed region (ii) is comprised of a dissimilar hole transport material than said first hole transport material (ii).

45. An organic light emitting device in accordance with **claim 1** wherein one of said first hole transport (ii) and electron transport (ii) also functions as a luminescent material.

46. An organic light emitting device in accordance with **claim 1** further containing in (ii) a luminescent material.

47. An organic light emitting device in accordance with **claim 1** wherein said electron transport region (v) is comprised of from 1 to about 5 layers, and wherein said layer in contact with said mixed region (ii) is comprised of a dissimilar electron transport material than said first electron transport material (ii).

48. An organic light emitting device in accordance with **claim 1** wherein said protective layer is present thereby optionally enabling device operation at high temperatures, which temperatures are optionally from about 70°C to about 100°C.

49. An organic light emitting device in accordance with **claim 1** wherein said device functions at a temperature of from about 22°C to about 70°C.

50. An organic light emitting device in accordance with **claim 1** wherein a. is similar and b. is dissimilar.

51. An organic light emitting device in accordance with **claim 1** wherein a. is dissimilar and b. is similar or dissimilar.

52. An organic light emitting device in accordance with **claim 1** wherein the thermal protective layer is a silicon oxide or a silicon dioxide.

53. A device comprised of

(i) a first electrode;

(ii) a mixed region comprising a first hole transport material and a first electron transport material;

(iii) a second electrode;

(iv) an optional thermal protective layer coated on one of the first and second electrodes, or both electrodes, wherein one of the said first and second electrodes is a hole injection anode, and one of said electrodes is an electron injection cathode, and wherein the organic light emitting device further comprises at least one of

(v) a hole transport region interposed between said anode and said mixed region; and wherein said hole transport region is comprised of a second hole transport material, and which material is in contact with the mixed region; and

(vi) an electron transport region interposed between said cathode and said mixed region, and wherein said region is comprised of a second electron material, and which material is in contact with the mixed region; and containing at least one of

a. said hole transport region (v) wherein said first hole transport material (ii) is similar to or dissimilar than said second hole transport material (v);

b. said electron transport region (vi) wherein said first electron transport material (ii) is similar to or dissimilar than said second electron transport material; and wherein when a. is similar, b. is dissimilar; when a. is dissimilar, b. is similar or dissimilar; when b. is dissimilar, a. is similar or dissimilar.